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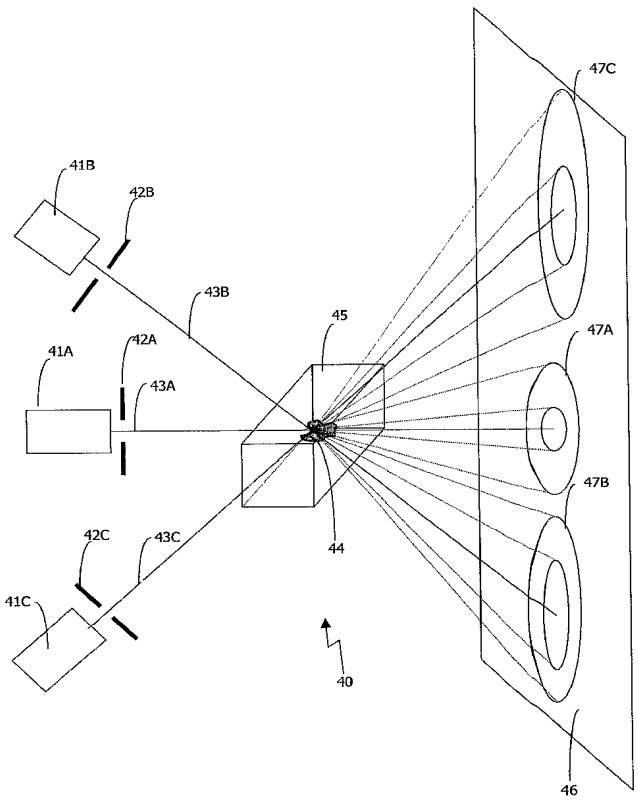
(54) **Title:** AN X-RAY DIFFRACTION (XRD) MEANS FOR IDENTIFYING THE CONTENT IN A VOLUME OF INTEREST AND A METHOD THEREOF



(57) **Abstract:** The present invention discloses an XRD means for identifying the content of a volume of interest (VOI) and a method thereof. A remote XRD means is comprised of a plurality of X-ray sources (41A-41C) targeted towards said VOI (44) ; a plurality of X-ray detectors (46) adapted to receive diffracted X-rays (47A-47C) ; a processor adapted to measure said patterns; a database comprising records of pattern parameters; and an alerting means adapted for identifying a material in the VOI as one of a predetermined group. This invention also discloses a method of acquiring XRD images of a material in a VOI (44), comprised of receiving VOI coordinates; irradiating the material in the VOI; acquiring, extracting and converting of XRD patterns (47A-47C) of said VOI to standard powder X-ray diffraction spectrum; matching records in a database for material identification; and alerting when said material is in matches a predetermined record.

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